IN THE CLAIMS:

1. (Currently Amended) An apparatus for substrate imaging, comprising:

at least one transmitter;

at least one receiver; and

a controller coupled to the receiver and the transmitter, wherein the controller comprises a processor and at least one substrate imaging program that when executed on the processor performs a method of:

(a) determining trigger intervals for at least two trigger signals for the acquisition of at least two images on a substrate surface moving with non-linear motion in a first direction, wherein a first trigger interval corresponds to a first image position and a second trigger interval corresponds to a second image position, and wherein the at least two images have substantially equal width in the first direction;

(b) transmitting one or more optical signals from the transmitter to the first and second image positions on the substrate surface;

(c) receiving the at least two trigger signals at the receiver, wherein the two trigger signals comprise a first trigger signal corresponding to the first trigger interval, and a second trigger signal corresponding to the second trigger interval; and

(d) receiving a portion of the one or more optical signals at the receiver from the first image position and the second image position.

2. (Original) The apparatus of claim 1, wherein the receiver comprises a time-domain integration camera, a line camera, a CCD camera, or combinations thereof.

3. (Previously Presented) The apparatus of claim 1, wherein the transmitter comprises a broad band light source, a narrow band light source, or combinations thereof.

4. (Original) The apparatus of claim 3, wherein the light source is a halogen light source.

5. (Cancelled)

6. (Previously Presented) The apparatus of claim 31, wherein the first and second motor rotations are step wise, linear or non-linear.

7. (Original) The apparatus of claim 6, wherein the first and second motor rotations are indicative of the rotation of one or more motors comprising stepper motors, linear motors, or non-linear motors.

8. (Original) The apparatus of claim 1, further comprising an interval measuring apparatus to determine the trigger intervals for the at least two trigger signals.

9. (Original) The apparatus of claim 8, wherein the interval measuring apparatus comprises counters, clocks, or any combination thereof.

10. (Currently Amended) A method of substrate imaging, comprising:

(a) determining trigger intervals for at least two trigger signals for the acquisition of at least two images on a substrate surface moving with non-linear motion in a first direction, wherein a first trigger interval corresponds to a first image position and a second trigger interval corresponds to a second image position, and wherein the at least two images have substantially equal width in the first direction;

(b) transmitting optical signals from a transmitter to the first and second image positions on the substrate surface;

(c) receiving the at least two trigger signals at a receiver, wherein the two trigger signals comprise a first trigger signal corresponding to the first image position, and a second trigger signal corresponding to the second image position;

(d) receiving a portion of the optical signals at the receiver from the first image position and the second image position;

(e) processing the optical signals into an image; and

(f) displaying the image.

11. (Original) The method of claim 10, wherein the receiver comprises a time-domain integration camera, a line camera, a CCD camera, or combinations thereof.

12. (Previously Presented) The method of claim 10, wherein the first trigger interval corresponds to a first motor rotation indicative of the first image position and the second trigger interval corresponds to a second motor rotation indicative of the second image position.

13. (Previously Presented) The method of claim 10, wherein determining the trigger intervals comprises measuring the rotation of a motor.

14. (Original) The method of claim 13, wherein the rotation of the motor is step wise, linear or non-linear.

15. (Original) The apparatus of claim 13, wherein the motor comprises stepper motors, linear motors, or non-linear motors.

16. (Previously Presented) The method of claim 10, wherein the trigger intervals equal to the number of steps of a stepper motor and determining the first trigger interval for the first image position and the second image position comprises:

(g) measuring a first number of steps of the stepper motor for the first trigger interval; and

(h) measuring a second number of steps of the stepper motor for the second trigger interval.

17. (Original) The method of claim 10, wherein determining the first interval for the first image position and the second interval for the second image position comprises measuring a first time interval corresponding to the first image position and a second time interval for the second image position.

18. (Cancelled)

19. (Previously Presented) The method of claim 32, wherein the step time is equal to the time between each step plus a dwell time for each step.

20-31. (Cancelled)

32. (Currently Amended) A method of substrate imaging, comprising:

determining trigger intervals for at least two trigger signals for the acquisition of at least two images having substantially equal width in a first direction on a substrate surface moving with non-linear motion in the first direction, wherein a first trigger interval corresponds to a first image position and a second trigger interval corresponds to a second image position, wherein the determining step comprises measuring a first time interval corresponding to the first image position and a second time interval for the second image position, wherein the measuring step comprises:

providing a step time for each step of a stepper motor;

determining the number of stepper motor steps for the first image position and the number of stepper motor steps for the second image position;

summing the step time for each step of the stepper motor for the first image position; and

summing the step time for each step of the stepper motor for the second image position;

transmitting optical signals from a transmitter to the first and second image positions on the substrate surface;

receiving the at least two trigger signals at a receiver, wherein the two trigger signals comprise a first trigger signal corresponding to the first image position, and a second trigger signal corresponding to the second image position;

receiving a portion of the optical signals at the receiver from the first image position and the second image position;

processing the optical signals into an image; and

displaying the image.

33. (Currently Amended) A method of substrate imaging, comprising:

determining an interval corresponding to at least one image position defining an image on a ~~non-linearly moving~~ substrate surface moving linearly at a non-constant velocity;

transmitting optical signals from a transmitter to the image position;

receiving at a first sensor of a time-domain camera a portion of the optical signals from the at least one image position;

processing the optical signals into a first image;

determining an integration interval for a second sensor of the time-domain camera positioned in a direction of travel corresponding to the non-linear movement of the substrate surface by determining the number of stepper motor steps from a start trigger point to the second sensor to obtain optical signals over an substantially equal sample distance as the optical signals obtained by the first senor;

receiving the optical signals at the second sensor from the at least one image position;

processing the optical signals into a second image; and

integrating the first and second images.

processing the optical signals into a second image; and

integrating the first and second images.

34. (New) A method of substrate imaging, comprising:

obtaining a first image of a substrate during a first sampling period moving in a first direction and having a velocity changing during the first sampling period;

determining a second sampling period for obtaining a second image of the substrate moving in the first direction based on the velocity change during the first sampling period; and

obtaining the second image of the substrate moving in the first direction.

35. (New) The method of claim 34, wherein obtaining the second image of the substrate further comprises:

obtain an image abutting the first image.

36. (New) The method of claim 34, wherein obtaining the second image of the substrate further comprises:

adjusting an exposure time of an image capturing device.

37. (New) The method of claim 36, wherein adjusting the exposure time of an image capturing device further comprises:

having an exposure time different than an exposure time utilized to obtain the first image.

38. (New) The method of claim 37, wherein adjusting the exposure time of an image capturing device further comprises:

selecting an exposure time such that a width of the first and second images in the first direction are substantially equal.

39. (New) A method of substrate imaging, comprising:

moving a substrate in a vacuum processing system having a non-linear velocity profile thought an inspection zone; and

obtaining images of the substrate moving through the inspection zone; and

adjusting a sampling time used to obtain sequential images having a uniform image width of the substrate in a direction of travel.

40. (New) The method of claim 39, wherein adjusting the sampling time further comprises:

changing the exposure time in response to a change in rate of substrate travel between sampling periods.

41. (New) The method of claim 40, wherein obtaining images further comprises:

obtaining a plurality of abutting images.

42. (New) The method of claim 40, wherein obtaining images further comprises:

obtaining images using at least one of a time-domain integration camera, a line camera or a CCD camera.

43. (New) The method of claim 40, wherein obtaining images further comprises:

illuminating the substrate with at least one of a broad band light source or a narrow band light source.

44. (New) The method of claim 39, wherein adjusting the sampling time further comprises:

adjusting the sample time based on a metric of robot rotation.

45. (New) The method of claim 39, wherein adjusting the sampling time further comprises:

adjusting the sample time in response to an number of motor rotation steps.